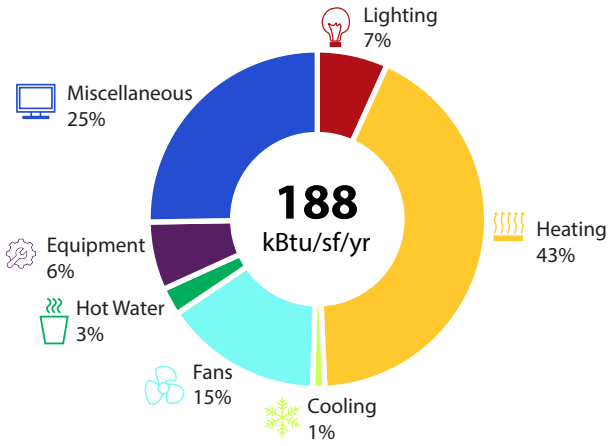
ENERGY EFFICIENCY

Fire Station 22 is 48% more energy efficient than a baseline building of the same size as calculated using ANSI/ASHRAE/IESNA Standard 90.1-2007. A building designed with sustainability goals in mind uses less energy, and thus has a lower carbon footprint.

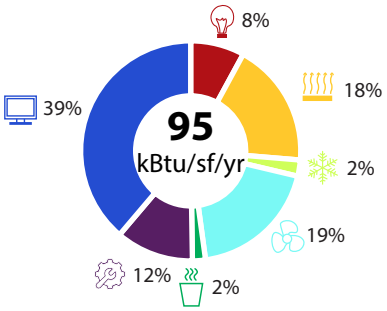
BASELINE BUILDING ENERGY USE INTENSITY (EUI)



Energy Savings

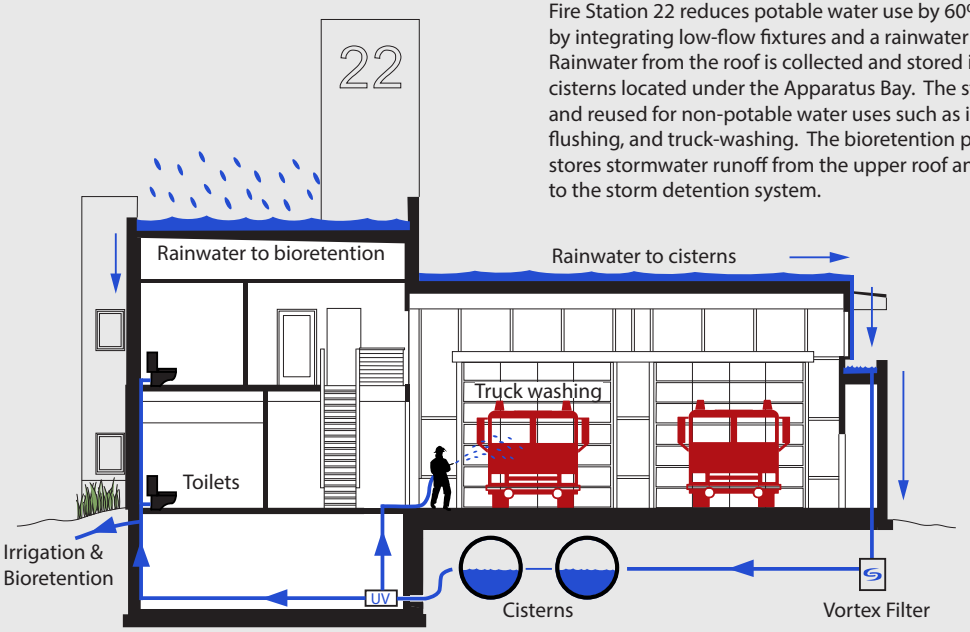
- Well-insulated and sealed building envelope
- Solar shading
- High-efficiency heating, air conditioning, and ventilation systems
- LED Lighting

FIRE STATION 22 ENERGY USE INTENSITY

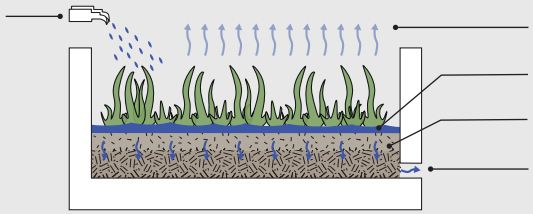


RAINWATER HARVESTING

Fire Station 22 reduces potable water use by 60% over baseline by integrating low-flow fixtures and a rainwater recovery system. Rainwater from the roof is collected and stored in two 6,000 gallon cisterns located under the Apparatus Bay. The stored water is filtered and reused for non-potable water uses such as irrigation, toilet-flushing, and truck-washing. The bioretention planter collects and stores stormwater runoff from the upper roof and slowly discharges it to the storm detention system.



Bioretention Benefits



Plants release water into air through evapo-transpiration, cooling the surrounding area and providing habitat for birds and insects

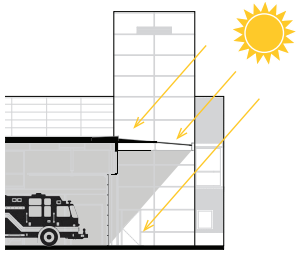
Water ponding

Plants, planting medium and drainage rock help filter pollutants, reducing pollutant loads into the stormwater system

Slow release into stormwater detention facility (pipe)

SHADING

15-foot deep roof overhangs at the Apparatus Bay provide solar shading to the fully glazed east and west facades, reducing the building heating and cooling loads.



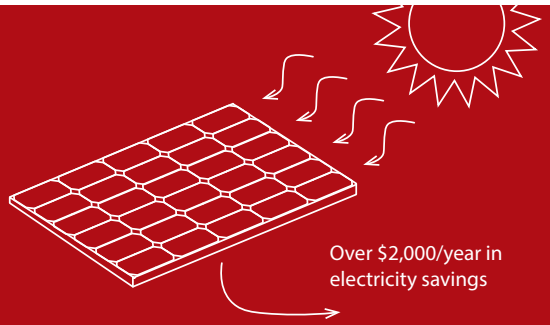
HEALTH & WELL-BEING

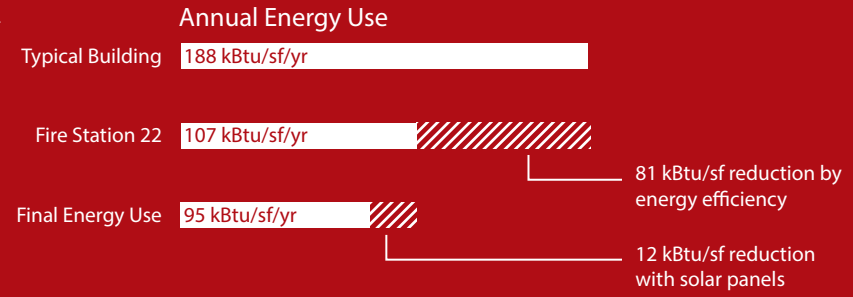
Exposure to natural daylight has been proven to enhance health and wellbeing. Fire Station 22 provides daylight, operable windows, and views to over 75% of interior spaces where the firefighters regularly spend their time. Interior lighting was designed to reinforce the natural circadian rhythms in firefighters and promote alertness in day- and nighttime lighting cycles.

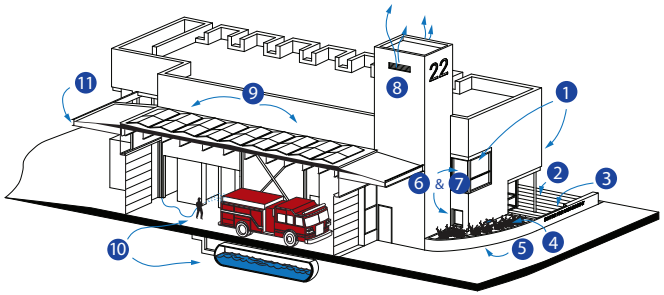
SOLAR PANELS

Energy from the sun is a free and abundant form of energy. Solar panels convert solar energy into electricity, which the building can use for its electrical energy needs.

Fire Station 22 has 78 solar panels on its roof, which supplies 16% of the building's annual electrical needs. This reduces the amount of electricity purchased, saving money, and decreasing reliance on fossil fuels.







1. The high-performance building envelope includes a well-insulated rainscreen cladding system with energy-efficient windows.
2. Open-grid paving at the Public Plaza reduces stormwater runoff and allows groundwater recharge.
3. Sustainably harvested wood certified by the Forest Stewardship Council (FSC) is used throughout.
4. Bioretention planter and rainwater storage cisterns collect rainwater runoff from roofs
5. Construction materials with a high recycled content are used throughout the building.
6. The use of natural light and daylighting controls for interior lighting create a healthy work environment.
7. Operable windows increase ventilation, give occupants greater thermal comfort control, and provide a connection to the outdoors.
8. The Hose Tower provides natural ventilation for efficient hose drying.
9. Renewable energy production is provided by photovoltaic panels covering the Apparatus Bay roof. The panels supply 16% of the building's annual electrical needs.
10. Two 6,000-gallon underground cisterns allow for rainwater harvesting that provides 100% of the site's irrigation and non-potable water needs.
11. 15-foot deep roof overhangs at the Apparatus Bay provide solar shading, reducing the building heating and cooling loads.

BUILDING MATERIALS & ENVELOPE

Diverted **94%** of construction waste from a landfill with recycling.

12% of the material used in the building was extracted and manufactured within **500** miles of the project.

High recycled content materials used throughout the building.

Built-in case work, benches, and wood finishes are made from Forest Stewardship Council certified wood.

Cover photo credit: Kelly Rodriguez

SEATTLE FIRE STATION 22

SUSTAINABILITY STRATEGIES

City of Seattle
Department of Finance and Administrative Services
Capital Development & Construction Management

WEINSTEIN A+U
Architects + Urban Designers